Transcript of the ‘All change please!’ podcast:

‘Can biodiversity still be saved?’

Introduction

Mandy Schossig:

Hello and welcome to a new episode of the ‘All change please!’ podcast. Yes, until recently it was still warm and summery outside. Autumn is now creeping in, but the mosquitoes and wasps are still annoying me a little. And that takes us into our topic today because we're talking about biodiversity. And of course, it's not just annoying, we also benefit from it.

Hannah Oldenburg:

And we are also part of it. Hello, Mandy. I think people often forget that. Sorry for the interjection!

Mandy Schossig:

Yes, no problem. Hello, Hannah. Nice to have you by my side today. You already know Hannah Oldenburg from the last two episodes. She's in charge of social media and our podcast at Oeko-Institut.

Hannah Oldenburg:

And you just heard Mandy Schossig; she's our head of communications. So, Mandy, although I spend a lot of summer hours chasing mosquitoes in my bedroom – which are quite annoying – the number of insects has actually decreased in recent years. And it's not just them – biodiversity as a whole is currently experiencing a decline, for which mankind is unfortunately once again primarily responsible.

Mandy Schossig:

That’s unfortunately the case, which is why it’s all the more important we talk about what we can do to save biodiversity in our podcast. I have invited our nature conservation specialist Judith Reise to join us as an expert. She conducts research on forest ecology and the protection of ecosystems and she also examines the synergies between biodiversity conservation and climate protection. Hello Judith, great to have you here!

Judith Reise:

Hello, nice of you to invite me.

Hannah Oldenburg:

Hello Judith.

Judith Reise:

Hello.

Hannah Oldenburg:

“What you love, you protect.” At least that's what they say. I recently went hiking again, for five days in the Alps. I can highly recommend it; it’s really beautiful. And I'm always amazed by the enormous variety when you're out and about in real, genuine nature. Judith, when did you fall in love with nature?

Judith Reise:

I can't even remember when it began. I suppose the hour I was born, it was probably already over for me. My mum took me to the Berlin Zoo every day after I was born and I probably developed a lot of enthusiasm for animals there. I always knew that I'd become a biologist. When people asked me as a small child, it was absolutely clear that I wanted to study biology and would like to work with animals and plants and protect them.

Mandy Schossig:

And what happened during your Uni days? Were there any highlights in your encounters with nature?

Judith Reise:

I studied biodiversity and ecology in Göttingen, so I opted directly for a biodiversity degree programme. I continued in Bayreuth with a Master programme in global change ecology, which also included the climate change component, and then I learnt about the modelling of species in their environment and land use. And highlights I experienced in nature? Yes, I was very lucky that my studies took me to two tropical countries and I'd say that was one of my nature highlights. I went to Ecuador, to the rainforest. Of course, being there is an absolute highlight for biodiversity researchers – you can't get more biodiversity than that. And in Cambodia, where I wrote my Master thesis, I was once allowed to hear elephants at night in the tropical dry forests, which is another special type of tropical forest. And that was, I would say, a very impressive, very beautiful experience that I always like to think about.

Hannah Oldenburg

Yes, very nice. At the moment, though, you're more likely to be sitting in front of a computer, researching nature conservation. Would you sometimes rather be out in nature than sitting in front of the computer?

Judith Reise:

Yes, I would. Sometimes I look longingly out of our office window and watch the swifts returning in the summer, doing their rounds. Or other birds – the blackbird, for example, which always sits on the cherry tree and sings beautifully. I used to do a lot of field research and I know that it's really exhausting and shouldn't be underestimated. It's physically challenging as a field researcher; I think theoretically for me it would be a mix. But ultimately doing research – absorbing knowledge, processing and reproducing knowledge and thinking about strategies – is what appeals to me the most.

I think that if I were sitting in the bog again mapping whorl snails, my mind would turn to specific strategies again. It's always a back and forth and that's why I try to spend a lot of my free time in nature.

Mandy Schossig:

Yes. We also want to benefit from your knowledge on the subject of biodiversity. But first, let's get you all on the same page and give you a brief overview of the topic.

Sound clip: brief subject overview

There are over 380,000 different species of beetle – more than there are species of bird or mammal. As far as the Earth's microorganisms are concerned, we've probably only discovered one per cent

of them so far. But biodiversity is much more than the diversity of species. Biodiversity encompasses all of the Earth's natural resources, i.e. the variety of species, ecosystems and the genetic variety of organisms. Humanity is therefore also part of biodiversity. Our survival depends on intact ecosystems and great biological diversity. Nevertheless, human activity is currently leading to an ever-increasing loss of biodiversity. The way we use land and, not least, climate change are putting pressure on oceans, soils and forests. So: What needs to change in order to protect the earth's natural resources? And who should take responsibility for that?

Definition and relevance of biodiversity

Hannah Oldenburg:

So, we want to learn more about this topic, but let's go step-by-step. A lot has already been said about variety and diversity in this context. Can you be more specific? What exactly do we mean when we talk about biodiversity?

Judith Reise:

Yes. We heard in the introduction that there is a very specific definition that is also recognised internationally. The diversity of species, the diversity of ecosystems, but also – and this is a component that is sometimes difficult to imagine – the diversity of genetic make-up.

Here's an example to give you a better idea of that: There are species that are becoming extinct, and we know that. It happens far too often and far too quickly. But species also disappear slowly. That's a process. In other words, there are fewer individuals of a species. And that ultimately limits their genetic diversity. But it is precisely this genetic diversity within a species that makes the difference when environmental conditions change. And if we consider that we are in a period in which the environment is changing very quickly with climate change, but also land use processes – these are all very rapid changes for the environment – the genetic make-up of a species is all the more important. That's because, depending on the characteristics of the species, an individual may or may not adapt. And then the extinction process is not so drastic. The species does not disappear immediately, but there are always individuals that survive. This is why biodiversity is also enormously important at this level, the genetic aspect.

And in fact, this is also an aspect that we don't yet know much about. Of course, it's also technically quite complex to record genetic diversity within a species.

Mandy Schossig:

I would also like to pick up this thread again. We've just heard that our survival depends on intact ecosystems. Why is this biodiversity or this diversity so important? Apart from the gene pool aspect, which you've just mentioned. Perhaps you could summarise it again.

Judith Reise:

Yes, of course. Ultimately, we feed on other species, whether it's lettuce or carrots or cattle or deer in the forest or fish in the water. They are sources of food. Plants fulfil the service for us of absorbing carbon dioxide and producing oxygen. The oxygen we breathe in is mainly produced by algae. This is essential for our survival. Of course, algae are also a resource for medicine, for example. We are healthy thanks to biodiversity and Hannah said it so well: we're part of this diversity or life on earth; it contributes to our mental well-being. What would the world be like without birdsong or without the

autumnal joy of mushrooms in the forest? That’s enormously important and in this respect we depend on other living beings and that’s what makes them special.

Hannah Oldenburg:

Climate protection is emphasised in the media and in political discussions. Why is that the case? Why does biodiversity fall behind?

Judith Reise:

Yes, that’s true. It’s definitely because climate change is easier to measure and can be better explained. It's easier to measure carbon and other emissions. It's easier to communicate. And this may sound a bit strange because we've already talked a lot about how difficult this topic is, including in the podcast. But think about the topic of biodiversity. You can hardly pronounce it, that's another thing. And then comes imagining it and monitoring it precisely.

Ultimately, you can’t get around observing species and counting them. There are methods for doing this. And it's not always easy to establish a direct link to, for example, land use and the disappearance of species or biodiversity. It's always very complex and because the topic is so complex, it's not always tangible and falls down the agenda a bit. You can come up with carbon credits and a system for companies. What do we want to do about biodiversity? That’s very difficult. Of course there are ideas, but that's a completely different, more complex topic, you could almost say.

Mandy Schossig:

Okay, before we take a closer look at what we can do to protect it, let's first understand the extent to which we are losing biodiversity. How bad is the decline in biodiversity today?

Judith Reise:

There are studies by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, which publishes reports similar to the IPCC process. The scientific studies are summarised on the platform. Of the species that we know about – around eight million – one million species are already endangered. That's a big number, of course.

We can take a look at Germany to better visualise the numbers: bird diversity alone has declined by a third in the last 25 years. That doesn't just mean that species have disappeared, but also that they have become fewer. That's what I said at the beginning about genetic diversity. Perhaps some of you are familiar with the Northern lapwing – it is a cute little bird that hops around on wet meadows and was relatively common in the north of Germany but is now a very rare bird. It’s the same – and Hannah has already mentioned this – with insect diversity and the quantity of insects.

There is this famous Krefeld study, which many people may have seen in the media in 2017, which measured the biomass and diversity of insects in protected areas in Germany since 1989. And even in the protected areas, the biomass of insects has fallen by 75 per cent since 1989. That’s no longer imaginable – it's a crazy amount. I think that's two figures in one. Now I could go on to talk about plant diversity, which has also declined. These two figures alone, I think, make it clear that we have seen a drastic decline in the spread of species in recent decades, but also in species themselves, worldwide, especially in the Global South, in the rainforest, for example.

Hannah Oldenburg:

You've already mentioned a few things about who is doing the research and measuring. Without going into too much detail, can you briefly tell us how you go about it, how you arrive at these figures?

Measuring biodiversity

Judith Reise:

Yes, this is often done as part of studies that are publicly funded. For example, the WWF and the Institute of Zoology in London are engaged in quite a large co-operation in which they summarise these studies and consolidate them in the Global Index. That's a very important factor to measure. Citizen science can also be used, for example the Garden Bird Hour [*Stunde der Gartenvögel*]. You can also set up series of measurements there. These are all sources, some of which are compiled on websites. Citizen science, global studies.

Mandy Schossig:

So, citizen science means that people also count, just like you and me.

Judith Reise:

Just like the Garden Bird Hour. And that can be summarised. There is no system worldwide for which you can say: "Okay, this will be carried out regularly". But these are small individual studies. And the red lists are a concept that is more or less the same internationally. Species are assessed in terms of whether they are endangered or already extinct. Many people may be familiar with this. It's also used as a source.

Mandy Schossig:

And what will actually happen if as many species become extinct as feared?

Consequences of species loss

Judith Reise:

I would like to tell you a little story to help you visualise this. I can of course say it's dramatic globally and so on. But it can also lead to huge problems regionally. A very well-known story is that of the Indian vulture, which almost became extinct in the 1990s. It is not yet extinct, thank God. It still exists. But you have to imagine that there were millions of them in India. It was quite a visible animal – almost the blackbird of India. They gnaw on the carcasses and clean them of the meat and then only the bones remain. In the 1990s, there were only a few thousand vultures left. That's when it started. In the 2000s, there were only a few thousand vultures left. They were on the verge of extinction.

What happened? Grazing animals were fed a painkiller that was toxic to the vultures. And they ingested the meat and died. As a result, the carcasses were lying around. There were no other species that would have taken care of the carcasses. The decomposition process was extremely slow – it's hot and dry – and then pathogens spread. Who came? Dogs and cats ate them and carried the pathogens into families and households. There are studies that argue there were more infections in India in the 2000s. You can definitely see a correlation.

That's how dramatic the disappearance of a species can be. And finally, studies have shown that the coronavirus pandemic can also be linked to the decline of ecosystems. We are encroaching

further and further into the habitats of wild species, coming into contact with them or bringing them to us because they can no longer find breeding caves in trees. Keyword: bats, they come into the plantations, where they may infect fruit and vegetables, which humans then eat. And so the circle closes.

Mandy Schossig:

Okay, I understand about the vulture, but these mosquitoes and wasps are really annoying, aren't they? We can do without them. At least that's the myth we hear again and again. Maybe you could explain that a bit.

Judith Reise:

Yes, I'm always asked that by my friends: why do we need them. Of course, it's very difficult to explain when you have to kill mosquitoes in your tent in the evening and then get asked a question like that and you're extremely annoyed yourself.

But ultimately, of course, every animal – I can put my seal of approval on that without knowing it for myself for each individual species – has its place and its task in the larger system. Mosquitoes are a food source of birds and other amphibians, of all kinds of other animals like bats, for example. So, they are a super-important food source. And there can be, as some of you may know, no chocolate without mosquitoes. I think that says it all. Case closed! None of us want that to happen.

Mandy Schossig:

What's the deal with chocolate?

Judith Reise:

Well, cocoa blossom is a tree and it's so specialised that it can hardly be pollinated by any insects. But there is a species of mosquito that is precisely adapted to it with its body structure and small antennae. And only this mosquito can get into the cocoa blossom and pollinate it.

Mandy Schossig:

Okay, then, case closed!

Judith Reise:

If the mosquito doesn't become the favourite species of a lot of people, then I don't know what will.

Hannah Oldenburg:

Yes. Well, I'll probably put up with the next couple of mosquito bites then! Let's take a look at the various reasons for the decline. In principle, what causes biodiversity to be in danger?

Reasons for biodiversity loss

Judith Reise:

A distinction should be made between direct influences and influences that have an indirect effect. I would like to start with the direct ones. There are many studies on those. And the very first thing mentioned in the studies is our agriculture and forestry, which have a very big influence on our environment and the way we physically shape the ecosystems, i.e. what structures are in this

system, but also what substances get into the system. That's determined by our land management. A very important factor. The competitor is the sea. How do we fish the sea? This is an enormously important part of the fact that biodiversity in the sea is continuing to disappear. The influx of substances into our oceans is a crucial factor in our loss of biodiversity.

Another factor is the spread of infrastructure, which causes forests and other ecosystems to disappear, for example. But, ultimately, we also have an influence by directly removing animals, i.e. by hunting them. Many species are on the brink of extinction or have already been wiped out because we hunt them. That's also a factor. Another factor is the introduction of species into areas in which they were not originally – so-called alien species or species that are aggressive towards native species when they spread invasively. The American crayfish, for example, is a problem currently in Germany because it's displacing the native crayfish. That's a factor that affects biodiversity. Roughly speaking, these are the direct influences.

We also have climate change, which is becoming an increasingly important factor. I've already mentioned that the environmental conditions, especially the climate, are changing very quickly and in regions that are already very fraught in terms of temperatures or water, for example, it is of course becoming increasingly difficult for species to adapt there. And as a result, these species can no longer occur there and have to migrate. That's a very important factor.

Mandy Schossig:

Okay, but let's take another look at a few of the points, also to find possible measures to protect biodiversity. Let's start with this direct driver of land use. We already know from our podcast that livestock farming is bad for the climate. What exactly is the problem for biodiversity in the way we use our land?

Direct driver: agriculture

Judith Reise:

If we stay with Europe and specifically with Germany (which of course varies greatly from federal state to federal state), we can see that the spatial structure of agriculture in particular has changed enormously since the end of the Second World War. In other words, it has become much more extensive. Small structures such as hedges and trees in the fields have disappeared. We have become much more technical in agriculture. This means that we need large machines and large areas of land to cultivate. The periods in which we cultivate crops in succession have changed.

And a very, very important factor – especially for insects – is the use of insecticides and pesticides, substances that have a toxic effect on insects and other living creatures, including soil organisms, and are poisonous and directly kill or at least weaken them. The use of pesticides has led directly to a decline. We also have the problem that we apply a lot of fertiliser – I'm sure some people are aware of this – and this excess of nutrients has a direct impact, but also an indirect one, in that it gets into the groundwater or into the waters directly next to arable land. And these nitrates that get in there can also directly disrupt the development of fish or amphibians or, in the worst case, even kill them if pesticides are added. The same applies to what ends up in rivers and lakes, eventually also ends up in the sea. And for the Baltic Sea, for example, this input of fertilisers and other harmful substances that directly disrupt biodiversity is also a major problem.

Hannah Oldenburg:

In other words, if we want to restructure agriculture in such a way that we protect and preserve biodiversity more, does that mean less fertiliser, an end to glyphosate, more land or trees on pastures again? Or what are the specific measures that we should take?

Judith Reise:

Exactly. So ultimately, no pesticides, preferably, or pesticides that don't cause these terrible effects – you've already mentioned less fertilisation – and these biologically valuable hedges. But also the regime, if you mow a grassland five times, there can be no variety of plants, a Northern lapwing would not feel at home there, even if the water levels in wet grasslands continue to fall. That's a huge problem. We haven't mentioned farming on peat soils either. That also comes directly into play. More small-scale structures. Flower strips, too, are already being used, which is also incentivised by subsidies, and also has positive effects, as studies have repeatedly shown. But creating these edge effects again with green structures would be very important. And, of course, there's also the question: what are we actually growing and for what purpose? That is, of course, crucial to achieving a good rotation of crops. And also fallow land, which is a measure that is currently being abolished in the EU. That's very bitter, because it is precisely on fallow land that other plants can spread and insect diversity can increase.

Mandy Schossig:

I can already hear people saying: "Well, but you can't farm like that. It's not efficient at all. We have large fields so that we can harvest as much as possible and so that food isn't so expensive." What would you say to them?

Judith Reise:

That's definitely a major challenge. Of course, food security is a very important goal that must go hand in hand with the other challenges we face, climate protection and biodiversity. And thank God there is a very large overlap. And, unfortunately, the crux of this matter is a very big one, namely what we grow. What do we actually use the land for? And the vast majority of arable land in Germany is used to feed animals. Animals that we ultimately want to eat, i.e. cattle and pigs. And that is also the question: do we need that or is it desirable that we keep so many animals?

And that's a very big question and of course opinions differ and I also realise that this is a fact that can't just be changed. But I think it's super positive. I think it has changed a lot in the last few decades. I've been a vegetarian since I was a child and I can see that. You used to find no vegetarian options at all in restaurants. Now, even in rural Thuringia, a vegetarian dish is offered. So, I think it's a generational question. Of course, it should be happening much faster. But ultimately, that's exactly what I would say to the critics: we change what we grow and that frees up an incredible amount of space.

Mandy Schossig:

You can also listen to our episode on agriculture again – Hannah is already nodding! – in which we went into more depth on that. Are there examples in certain regions in which this is already working well, where organic farming is a bit more diverse and small-scale?

Judith Reise:

Exactly. There is a core area of organic farming in Germany in which – at least as far as I know – it may have already changed. It always develops relatively dynamically. That's the Uckermark, at least it was like that there a few years ago. Perhaps some listeners are also familiar with the village of

Brodowin, which you can visit. There's a farm there that you can visit; they have an open farm day. And this Brodowin region, in which only organic farming is practised, is quite unusual. And I recommend going there in May and early June, when the poppies are in bloom. It's marvellous. You have to see it and then you realise the beauty that comes with farming in a different way.

Hannah Oldenburg:

That's a nice bike ride from Eberswalde, I can recommend it. Let's move on to another driver that you briefly mentioned. When it comes to what we have on our land, there's a lot of forest around. And I would say that trees are good for the climate – we already know that – because they bind CO_2. And I would think that they are teeming with different species. In other words, where in the forest can there be problems for biodiversity? Or is it just great to have as much forest as possible?

Direct driver: forestry

Judith Reise:

It's always great to have as much forest as possible. That can never hurt. The situation is also a little different with forests, because forests span enormous, long periods of time, whereas in agriculture you can introduce a different management regime relatively quickly; in the forest, that's not easy at all. This means that our forests, as we see them now in Germany, are in principle still very much influenced by what was planted there over 80 years ago. And the situation after the Second World War was extremely dramatic. Many forests had disappeared, been cut down or simply destroyed. There were few resources and many spruces and pines were planted. Here, in this region, pine in particular was readily available. It's a great tree species that grows wonderfully in open spaces and then the problem was solved. That led to the forests, some of which we have now lost again since 2019. Many people have noticed that spruce has largely disappeared in some regions because it could no longer cope with the conditions. This means that it will take many decades to change the tree species and the management regime before we really see any effects in the forest.

But what you can do, and this is something that is also carried out every ten years in the national forest inventory, is to measure trees in a sample grid and look at the structures. And, at that time, what was missing in the forest was already shown – currently, it's deadwood. For one thing, our forests are not that old. As I just said, many of our forests were only really established 80 years ago. That means there wasn't that much deadwood, but it is a very important structure for various species of beetle and then the birds hang on it and other species hang on it. We have a very low share of deadwood in Germany. It has now increased a little due to the dead trees. There is a lack, but also a lack of tree species. If you only plant pines and spruces, that's not the type of forest we would expect here in Central Europe. And, accordingly, fewer species occur on these trees. But it takes a very long time for this change to actually take place, for deadwood to develop. It takes a long time and management has to be applied accordingly. And this is a process that clashes with traditional forestry methods, where we try to cut straight trunks and at the same time if possible. That used to be the case. There's currently a lot of movement to change this, but these are the main points that are difficult.

Also for the soil, a very short note on this: nitrogen inputs. Here, too, from agriculture and animal husbandry, an important factor in the forest as well, causing nitrogen levels in the soil to rise and thus favouring certain species such as elderberry in forests. And then forest trees would be less competitive. Depending on the region, that can be a major problem.

Mandy Schossig:

And how must forestry change as a result so that this can also change in the long term?

Judith Reise:

I've already said that we should endeavour to change tree species. For many decades, forest reorganisation has been on the agenda of the German federal states, which are responsible for the forests. It's not a task of the central government, just like nature conservation, by the way – it's a task of the individual federal states. It's a lengthy process that could certainly have been organised more quickly. Now the bark beetle has taken a lot of work off our hands, thankfully. And forest reorganisation is certainly a very important factor.

Mandy Schossig:

So: plant other trees.

Judith Reise:

Not necessarily planting. You can also think about what you do. That's a podcast in its own right. How can we bring about reforestation or new forest areas? We also have projects on this. If anyone is interested, get in touch! We can talk for hours about how to achieve this change in tree species. From a nature conservation perspective, the slow re-growth of tree species, also from the genetic diversity, would be a good idea. Then exactly those tree individuals would be separated from the natural conditions that grow very well there. That's of course an ideal system, but not so simple if, for example, there are no beech trees for miles around. Where should the beech trees come from? You have to look at the situation. So, change the tree species again.

Then we have the deadwood structures. I've already mentioned this: these can also be other structures, such as tree hollows, trees that are not the most beautiful from a timber production point of view, that are crooked and bent, that have broken branches somewhere, that have so-called forked branches. These are all trees that are not so easy to work with in the shipbuilding industry, but which form niches for animals and plants in which they feel at home.

Hannah Oldenburg:

Okay, we'll talk about the tree forks another time.

Mandy Schossig

I love that: "tree forks".

Hannah Oldenburg:

OK, we'll come back to them. But let's get to another driver that you mentioned, namely climate change. That's a big topic. To what extent are climate change and biodiversity linked?

Direct driver: climate change

Judith Reise:

Exactly. Ultimately, it's a cat biting its own tail and going round in circles. You can say that we generate emissions by destroying ecosystems, for example forests, or through land use, fertilisers and so on. These are all emissions that we cause. This is fuelling climate change and then the

climate changes so drastically that species cannot adapt to it as quickly. That's the very simple version of this cycle. And the fact that it's a cycle means that part of the solution lies in the fact that climate protection can ultimately be strongly linked to the issue of protecting land use and biodiversity.

And we're working a lot on this at Oeko-Institut, on precisely this topic of nature-based solutions that also bring added value for biodiversity and occupational safety. And one of these measures would be the protection of peatlands, for example. That's a classic example for Germany and highly relevant as many emissions are released here. A lot of carbon is sequestered in peatlands over thousands of years. And if you grow potatoes or anything else on it, this carbon is released.

If we add water to the area, the carbon is once again shielded as in a bell jar and can no longer escape into the air. And at the same time, in the best case scenario, species that love this moist habitat a lot will be able to return.

Mandy Schossig:

We have just said that climate protection often gets more attention than biodiversity. But where are the synergies? If we tackle both at the same time. Do you have an example other than the peatlands?

Judith Reise:

Another very good example is forests. If we utilise forests more extensively and allow more structures there, then forests are generally also more resilient. There are many studies that show that something like the great spruce dieback would not happen again. And the collapse of the forest carbon sink in Germany alone, which has come about as a result of this great spruce dieback in recent years, is gigantic. And if we get rid of this fluctuation of our largest carbon sink in Germany alone, by managing it differently, we will have done a lot for climate protection. And at the same time, we will have created structures in which forest biodiversity can thrive.

Hannah Oldenburg:

Okay, here are a few examples. Thanks for that. Now the EU has just passed the Nature Restoration Law. I would think that rewetting peatlands probably counts as part of that. Can you briefly tell us what this law is all about, generally and in particular?

Judith Reise:

The EU developed its Biodiversity Strategy several years ago and one of its points is that the ecosystems in the EU are predominantly in a very poor state. We know this from the Natura 2000 network, which some of you may know is a system of protected areas that spans the EU and some of which are here in Germany. The areas are regularly monitored, so we're well aware of the condition of these areas. And one of these measures is to restore them to a good condition, because these ecosystems are the basis of our livelihoods. And the Nature Restoration Law tackles precisely this and, above all – and this is the great thing – it sets targets that have a time frame.

By 2030, we want to provide 20 per cent of areas in need of restoration with measures to restore them to a good condition. And by 2050, all habitats in need of restoration are to be restored to this state or at least provided with measures. These are important goals and you have already given an example. Peatlands would be an important topic.

In addition to these Natura 2000 areas, on which the law is strongly focused, there are areas outside Natura 2000 where the various ecosystems, forests, agricultural landscapes and urban ecosystems

are addressed. The aim is to bring green structures into urban habitats, but also to remove barriers from rivers, for example, so that the water can flow freely again or floodplains can be freed up, which is becoming increasingly important in the context of climate change. This means that one of the important aims of this law is also to realise our goals in climate protection, but also in climate adaptation, which are linked to land use. And the implementation of this law will provide a very important framework for this. And now, over the next year and a half, the EU Member States, including Germany, must submit plans on how they intend to implement this on their land.

Mandy Schossig:

Before we go deeper into policy, I would like to open up another aspect again. You told us about this in our discussion before the podcast. In addition to the very large and direct drivers, there are also indirect drivers. You mentioned them very briefly. They refer to our own way of doing business or our consumption, which then has an indirect effect on biodiversity. What is the problem here? What's the connection? I'd like to briefly return to that.

Indirect drivers of biodiversity loss

Judith Reise:

I think it's very clear that we're almost directly promoting air travel by offering tax breaks on it. We have the lowest VAT rate on products of animal origin. For vegan products, plant-based milk for example, the tax rate is higher. Why is that? These are all questions and they don't have a direct effect. VAT doesn't directly kill the Northern lapwing, but it does so indirectly in a way because it influences consumption. We're being steered towards buying the cheaper products. And many of us have to pay attention to that; everything has become more expensive. Who buys organic products right now? They are simply incredibly expensive. If you look at organic tomatoes, the price per kilo is insane. These are controls on our consumption. That's an important factor that I would like to mention here. But there are also other behavioural incentives. I don't just mean individual behaviour, but also how industries can behave because they receive concessions, such as company car privileges.

These are the indirect factors that need to be addressed. There are also great studies that show the billions that flow into this every year, while what ultimately flows into the protection of biodiversity is only a fraction. But if you think about the damage it all causes and the economic costs we incur if we experience a major natural disaster or the vultures die off and people fall ill as a result or we have to rehabilitate them…

Mandy Schossig:

OK. Let's leave that aspect now. Hannah, you're going to continue with policy, aren't you?

Policy framework for biodiversity conservation

Hannah Oldenburg:

Yes, I'd also say that's a good transition. I think if you want to live in a biodiversity-friendly way, buy oat milk or eat vegan, it's not necessarily made easier for you. Policy has to start there, as you have already mentioned with taxes, with privileges that need to be reconsidered. Let's take a big look at

this. The goals that politicians have already set themselves, perhaps on a large scale, like the United Nations, with the current CO_2 mitigation targets. Are there also targets for biodiversity?

Judith Reise:

Yes, they do exist. What we still remember, for example, are the International Climate Initiative (IKI) targets from the previous decade, which were adopted at this major biodiversity conference over ten years ago and touched on various topics. Unfortunately, most of them were not achieved with concrete, measurable targets.

And now we have a follow-up agreement from the last conference in Cumming, Montreal, two years ago. It's a very important goal that we have globally: 30 times 30 times 30. It's easy to remember – that is, 30 per cent of the land area and 30 per cent of the sea area should be placed under effective protection by 2030 to protect biodiversity. That does not mean it will become a total protection zone – quite the opposite – but simply that management, land use and marine use will take place there that does not harm biodiversity.

Mandy Schossig:

And does the EU have its own biodiversity strategy based on this? You just said something about that. How does that tie in?

Judith Reise:

Exactly, the EU's biodiversity strategy came before that and is also based on it. And ultimately, the Nature Restoration Law, which was also passed in Cumming, Montreal, was a great example of the EU's desire to be a pioneer in this area and ultimately also comprises the implementation of these goals for the EU.

Hannah Oldenburg:

And apart from that Restoration Law, are there already other regulations on the EU level to implement the goals you mentioned?

Judith Reise:

I would say that the Nature Restoration Law is one of the most important. Of course, the implementation of the Natura 2000 process is generally straightforward. We've had it for 30 years; generally speaking, it's the instrument in the European Union for promoting nature conservation. Ultimately, one could also say that a CAP reform, which is also looked at from time to time, can and should also be an answer to this.

Mandy Schossig:

The reform of the common agricultural policy, you mean.

Judith Reise:

Yes, always these abbreviations! Exactly, that would also be a process, for example, that needs to be initiated for these international targets.

Mandy Schossig

And what is Germany actually doing to protect biodiversity?

Judith Reise:

Yes, Germany has a national biodiversity strategy from 2007, but I don't know when an update will be published. We are curious. Of course, Germany will hopefully put a lot of effort into the Nature Restoration Law and present its renaturation plans in an exemplary manner. Otherwise, we have integrated natural climate protection, including biodiversity protection, into the natural climate protection action programme. This is often one of the objectives of the measures mentioned in the programme. Of course, there is also something like the insect protection initiative. As nature conservation is not a task of the central government in Germany, these efforts are often specific to the individual federal states. Many people may remember the Bavarian Nature Conservation Act. That's an answer where you can say that Germany is leading the way. But otherwise, I would say that funding for biodiversity is rather low.

Mandy Schossig:

Exactly, that would also be a question for you: is that enough for you, everything you've just listed? Or what else do you specifically want?

Judith Reise:

No, I think we can be even more ambitious. Of course, it's easier said than done. I am quite sure that the people in the authorities and ministries are doing a good job. Germany is also doing a good job in international negotiations on biodiversity policy. We often lead the way there too. That's really good and important. When it comes to national implementation, as I said, it's always difficult. There are always 16 parties at the table. That's not so easy. That also slows down the implementation of measures.

And, of course, we have many conflicting goals and land use conflicts, which we've already discussed. And then there's the large funding framework: what is getting funding? These are all factors that slow down the process a lot and always lead to conflicts. Which then, in my personal opinion, triggers a process that is restrained and in which little progress is made. I would like to see more money, more initiatives, more staff in the nature conservation offices – specifically to create the capacity there to deal with nature conservation issues in land use so that advice can be given there. The so-called biological stations in North Rhine-Westphalia are a really great concept: citizens can go and get information and concepts are developed jointly with farmers. We need much more of that kind of thing. We need funding and investment for this.

Convention on Biological Diversity

Hannah Oldenburg:

Okay, let's take a final look at our upcoming International Conference on Biodiversity, because you just mentioned that when speaking of international negotiations and agreements. It's just around the corner again. Incidentally, the official title is the Convention on Biological Diversity. Who is gathering there? What will be discussed? Is this a meaningful event for more biodiversity?

Judith Reise:

That's right, this is the Conference of the Parties to the Convention on Biological Diversity. I believe there are 192 parties that will come together and sit around a table. And this conference will be about the national plans that are to lead to the implementation of the targets agreed two years ago. How

the countries intend to implement this in concrete terms. And they will present their national plans. That will be the main topic in Colombia.

Mandy Schossig:

And would you also say it’s very important for the countries to keep exchanging ideas?

Judith Reise:

Yes, exactly. So, as with the climate conferences, it's always an enormously tough process and at the end of the day you always ask yourself: "Oh, what has actually happened?” But nevertheless, I think it's really important to have an international dialogue on this, and also for individual countries to lead the way, such as the EU with its Nature Restoration Law, which provides motivation. And that's why I think these conferences are enormously important for biodiversity conservation.

Hannah Oldenburg:

Very good. We’ll be interested to see what happens there, I'd say. You’ve already looked to the future and expressed positive ideas. Perhaps we can take another look at the future: How would you look to the future of biodiversity? Will we manage to save it and preserve our diversity?

Outlook and conclusion

Judith Reise:

Yes, I wish I had a crystal ball in that respect and could accurately predict our future. I would respond by saying that we know the measures and what needs to happen. The task is to implement them. Of course, it has to happen in a process that allows participation. You can't decide anything top-down, especially with land use. And with certain regulations for industries, it's easier to create laws that sanction certain behaviour. When it comes to land use and forestry, it’s really important to involve the people there. And even if measures change our landscape, such as the rewetting of organic soils, you have to include the people who live in those areas, because the landscape will change.

But ultimately it is feasible and I also think that the financial resources should not be a problem. What with the environmentally harmful subsidies that Germany is spending billions on every year – there’s a great UBA report from 2021 on that, you can take a look at it. Not the way the German government has done it, where we take away the diesel subsidy from farmers. That's not what I mean…. That's exactly the problem. Rather, to work in coordination: Who has operations in the countryside and am I taking something essential away from them? Not like that, of course. But you still have to look at the subsidy in detail and see: What needs to be removed? Or how can it be organised differently? I think that's a very important question. And then, if we tackle these indirect and direct drivers step-by-step, we can include education. I would say that will work. We can do that by 2050, no problem at all.

Mandy Schossig

Okay, you've already said we can do it. That’s the “If you were Chancellor question” that we usually ask. We're not giving you a crystal ball; we're giving you the Chancellor question at the end. If you were responsible for getting all this off the ground, what would you implement first to stop the decline in biodiversity?

Judith Reise:

I'm going to make the signature gesture of the Chancellor – the Merkel diamond – to get myself in the mood to say something. I'd look at this subsidy in detail. If I could decide freely, then I'd address VAT on international flights and so on. I'd do that straight away to free up a lot of money. And I would invest that money in excellent nature restoration plans for Germany. I would adapt spatial planning accordingly so that the federal states would have to include these areas directly in their spatial planning. Where will the restoration take place?

And a great measure that I would implement immediately if I had the money to do so: I would give all children in Germany access to a school garden and plenty of space for free learning in nature, in these gardens or on farms. And then the children would learn how to grow carrots, for example. And they'd be able to process them straight away, because all public canteens will only serve healthy food in line with the Planetary Health Diet. Google 'Planetary Health Diet' – it's a great concept. They would be organised on that basis and then everyone can eat healthy food in the canteen free of charge, which is also good for the environment.

Mandy Schossig:

Yes, that sounds good. By the way, we have also published a recent study on climate-damaging subsidies and tax concessions. We'll put it in the show notes, I think there's a lot of room for manoeuvre that can be tapped.

Hannah Oldenburg:

Exactly. And at the end, we always ask our guests for listening or reading tips for our listeners. But I'd like to ask you again, as an individual listening right now for whom biodiversity is even more important after our conversation than it already was: what can you do yourself to protect biodiversity?

Judith Reise:

So of course, if you're lucky enough to have a garden or a balcony, you can install appropriate aids for birds or hedgehogs. Or let grass grow – that's my favourite measure. I've also installed it in my parents' garden. It works brilliantly. So, you can really install these pieces of fallow land yourself and simply not mow a corner and then observe what happens there for a year. And it's incredible the animals and plants that suddenly appear. And I think that's my biggest tip for everyone: just sit out in nature and see what happens. That's also very beneficial. Connecting with it and enjoying the peace and quiet. It's very healing.

Mandy Schossig:

Thank you very much, Judith. That's a very good practical tip and a great overview of the topic. Thank you very much.

Hannah Oldenburg:

Yes, thank you.

Judith Reise:

My pleasure.

Mandy Schossig:

Next time we'll meet a little earlier than usual for three exciting special episodes. We'll be cutting together the best bits from our online events at the science forum 'Circular economy – what's next?'.

And you'll be able to listen to them here from the beginning of October. It'll be about the circular economy for plastics, textiles and the raw material stockpile in our cities. By the way, you can still register for our final forum taking place in Berlin on 5 November 2024. You can find all the information on our website at https://www.oeko.de/wissenschaftsforum2024/. We'll also link to it in the show notes.

Hannah Oldenburg:

And because the topic is so incredibly important, we'll also be talking about it again in our next regular episode. But we'll focus on a different area of the circular economy, namely plastics and how the way we deal with them should change for greater sustainability. In a nutshell: we consume too much, we produce too much and there's still a lot of potential for more sustainability in this area. But we'll discuss all that next time.

Mandy Schossig:

Yes, and if you have any questions or suggestions, please write to us as always at podcast@oeko.de and we would, of course, be delighted if you left a rating in the podcast app, a few stars, a comment and so on. Goodbye and see you next time!

Hannah Oldenburg:

Bye bye!